

Comments About
OFHEO's Proposed Debt Refunding Rule
For the Government Sponsored Enterprises

By

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January 14, 2002

Introduction.

These comments focus exclusively on certain assumptions about debt refunding under OFHEO's proposed risk-based capital rule for the Government Sponsored Enterprises (GSEs). Specifically, I argue, first, that a 50 bp add-on for the callability option embedded in new GSE debt is completely unwarranted and, second, that there is no justification for the 10 bp credit premium on new GSE debt over yields paid by other borrowers. The 50 bp proposed yield add-on is far larger than would logically be required under the stress test's conditions. Moreover, it appears to be based on confusion between true interest costs and stated yields on callable securities. OFHEO's justification for the 10 bp credit spread is based on a dubious and inconsistent argument entirely unsupported by either logic or empirical evidence.

The yield add-on for callable debt.

The Enterprises would never issue callable debt with the characteristics assumed by OFHEO, but rather debt with much different call features for which the stated yield add-on would be no more than 5 basis points. In addition, an incremental capital requirement for any callability-induced yield premium represents an elementary financial error. The stated yield on a callable bond is not a true interest cost at all. It is an accounting fiction. The cash flow return a rational investor expects from such a bond is strictly less than the stated yield. It follows that any decrement to an issuer's capital is also less than the apparent "yield." Any interest rate volatility at all will lead to a much lower cost of financing than the stated yield.

The Enterprises would issue callable debt with a stated yield add-on of less than 5 bps.

Prudent risk management has strong implications about the appropriate type of Enterprise financing and about the characteristics of call options embedded in their callable debt

financing. The Enterprises' assets consist of long positions in non-callable annuities (the promised mortgage cash flows) plus short positions in call options (prepayments) on those annuities. To hedge such assets, the Enterprises must structure their borrowings so that promised outflows are duration-matched to the non-callable mortgage annuities while the call options embedded in their borrowing match the prepayment options.

Hedging mortgages is a complex business because homeowners, who are not usually finance professionals, decide when to exercise prepayment options. Nonetheless, the general principle is clear. If the mortgage prepayment option is in-the-money, prudent risk management requires that call options embedded in Enterprise debt also be in-the-money, and vice versa. Under an increasing interest rate stress test, mortgages in Enterprise portfolios will have coupons below the coupon on new mortgage originations; hence, their prepayment options will be out-of-the-money. Logically, the Enterprises should then issue debt with equally out-of-the-money call options.

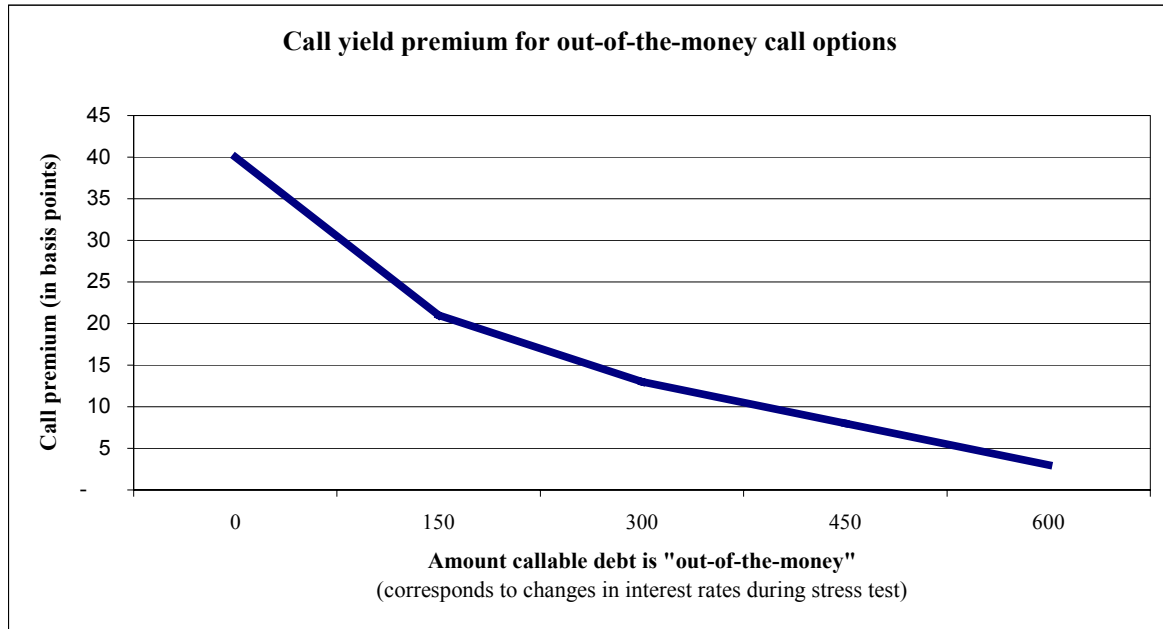
A new 5NC1 bond callable at par after one year has an embedded option at-the-money and so would be an inappropriate hedging vehicle under the stipulated conditions of the stress test. The bond's effective duration would be too short relative to the mortgage assets. This would expose the Enterprises to unnecessary risk induced by subsequent interest rate volatility, a risk they could and would easily avoid.¹

Out-of-the-money callable debt can be engineered either through the bond indenture (i.e., callable only at a significant premium over par), or by using discount debt callable at par with a below-market coupon. In either case, the relatively low value of the embedded call option implies only a small premium of stated yield over otherwise equivalent non-callable debt. The graph below depicts the callability-induced stated yield premium for various interest rates relative to the bond's coupon.² For example, by month 12 of OFHEO's stress test where interest rates have increased by almost 600 basis points, the

¹ If the Enterprises did finance out-of-the-money mortgages with at-the-money debt, they would make extraordinary profits should interest rates decline. They would be able to refund the debt at lower rates comfortably before the vast bulk of their mortgages began to prepay.

² Source: Freddie Mac Research Department.

premium is less than five bp, nowhere near the 50 bp proposed by OFHEO. In the next section, I argue that even this small premium is not a reflection of true interest costs, which are what really matter in terms of financial stress. True interest costs would, in fact, be lower than the stated yield.



Out-of-the-money amount (bps)	0	150	300	450	600
Call Premium (bps)	40	21	13	8	3

Notes:

Call Premium Calculated from Yield Book™: calculated as difference between bullet yield and callable yield with call at a premium.

Interest-rate curve: 1/04/02 swap yield curve, with curve flattening per rule as interest rates increase.

Implied volatility: Yield Book™ 2-factor term structure of volatility, constant OAS.

The Stated Yield on Callable Debt Overstates Expected Interest Costs.

Callable yield overstatement follows directly from an important assumption behind every yield calculation: viz., all cash received prior to the maturity of the bond can be reinvested at the initial yield. Because yields change unpredictably, this implicit reinvestment assumption is not generally valid for any bond, callable or not. However, for non-callable bonds reinvestments at higher future yields seem roughly as likely as reinvestments at lower future yields. To the extent that favorable and unfavorable reinvestment rates cancel each other on average, the initial stated yield is an indicator,

albeit a noisy indicator, of the expected total return over a non-callable bond's lifetime including earnings on reinvestments.

The situation for a callable bond is completely different. Bonds are called when interest rates decline below the initial yield while they are not called when interest rates increase. Hence, large reinvestments are likely at rates below the initial yield. Averaged over all possible interest rate scenarios and payments, the result is an anticipated total return over the bond's life strictly less than the initial yield.

If interest rates happen to increase after a bond's issuance and remain higher until maturity, the total return will be somewhat higher than the initial yield because coupon payments can be reinvested at more favorable yields. But in the event of declining interest rates, there is a severe erosion of return because both coupons and called principal can only be reinvested at lower yields. The overall impact is well understood by issuers and investors; callable bonds have lower values than non-callable bonds with identical coupons and maturity.

The lower value results, quite understandably, in a lower market price. Since the yield is simply the internal rate of return which discounts stated future cash flows, (i.e., coupons and principal on their scheduled dates) and equilibrates their aggregate to the current market price, the so-called yield is higher as the price discount is greater.

In an efficient bond market, there would be no cash flow difference on average between a callable and an otherwise identical non-callable bond from the same issuer. It is merely an artifact of OFHEO's stress test, the utter absence of interest rates volatility, which makes callable debt appear to be more expensive for the Enterprises.

The risk profile of a callable bond is identical to the combined profile of a non-callable bond with the same maturity and coupon less a call option on the non-callable bond. From option theory, we know it is possible to design a portfolio consisting of a long position in the underlying asset and various short positions in call options resulting in an

infinity of different risk profiles. It is even possible to construct a risk-free portfolio. But in every case, there is no sense in which one portfolio has a greater risk-adjusted return than any other portfolio. In other words, since the non-callable bond and the option are fairly priced, the callable bond is priced fairly too; otherwise there would be a money pump.

The 10 bp yield add-on.

Under the 1992 statute, there is already a 30% capital requirement for “management and operations risk” in addition to core capital and allowances for projected losses under severe interest rate and credit conditions. It is not clear to this observer why there should be an additional 10 bp yield premium relative to other issuers on new debt issued by the Enterprises, whatever the interest rate and credit conditions might be.

The argument adduced to support this add-on³ begins with a less than compelling observation that “...the preamble to the Rule suggested that such premium might be appropriate...” It is then admitted that “...data upon which to base such a premium may be too sparse to determine definitively whether other spreads to Treasuries would widen as much as the Enterprises’ spreads or to estimate how much the Enterprises’ spreads would widen.”

The subsequent discussion mentions problems that would be induced if such a yield premium did arise, but the only statement pertinent to whether it should arise is, “The stress test involves factors, such as a decline in housing prices, that might not affect the debt costs in other sectors of the economy as much.”

The final explanatory paragraph admits that “...An ideal stress test might model different spreads for different rate series, a complex approach that OFHEO could not implement in the foreseeable future. The ten-basis-point premium, therefore, can be viewed as a

³ See *Federal Register*, Vol. 66, No. 243 (Tuesday, December 18, 2001), p. 65153.

simplifying assumption, which gives some effect to the possibility that stress period market conditions could impact an Enterprise more adversely than the rest of the market.”

In other words, the OFHEO hasn't a clue about the appropriate size of any incremental credit yield premium nor even about whether it might be positive or negative. The 10 bp premium appears to be a pure concoction, not even a “simplifying assumption.”

There is no reason why the Enterprises should, under the specified stress conditions of increasing or decreasing interest rates, pay proportionately higher rates than other borrowers. In fact, the Enterprises are known for skill in managing interest rate risks by astute portfolio structuring of assets and liabilities, hedging with a plethora of interest rate derivatives, and judicious market timing. If anything, one might expect their relative borrowing costs to decline as interest rates increase or decrease dramatically. There is certainly no historical evidence to the contrary (as OFHEO freely admits.) Although 10 bp appears on the surface to be relatively “modest,” a term employed by OFHEO in its explanation, the resulting dollar capital requirement would be significant. Without any theoretical or empirical justification, the 10 bp add-on amounts to an unwarranted and unjust penalty.

Conclusions.

Risk-based capital requirements must, of course, be based on sound financial reasoning and historical empirical evidence. Simulated conditions of financial stress for the GSEs should be as realistic as possible. This does not appear to be the case for certain assumptions about refunding Enterprise debt under conditions of increasing interest rates.

There is no reasonable justification nor any historical evidence to support an across-the-board 10 bp credit yield spread on Enterprise debt relative to the debt of other borrowers.

The proposed 50 bp yield spread for the assumed 5NC1 bond overstates the true interest costs of the Enterprises for two reasons. First, the Enterprises would never be tempted to issue such debt under the stipulated stress test conditions, but would instead issue out-of-the-money callable debt with a stated yield spread of no more than 5 bp. Second, whatever the callability-induced yield spread happens to be, it does not represent a true incremental borrowing expense. The actual interest cost of callable debt is always strictly less than the stated yield. In fact, callable and otherwise identical non-callable debt of the same issuer should have exactly the same true interest cost.